These increase in length ventrally; the outer setæ, *i.e.*, those nearer the dorsal surface—being very short. The ventral setæ, which are fairly numerous, are of two kinds; those of the one kind, of various lengths, are smooth and bifurcated; the shorter branch being well developed, of about one-third the length of the longer, which has a strong bend outwards, and terminates in a blunt apex. The others are fewer, and of a very unusual shape. They have a slender stalk of varying length, but always much shorter than the longest of the other variety, and divided by a longitudinal dark line. This stalk bifurcates, the branches being much stouter than the stem, and of somewhat complex form. The shorter branch is somewhat club-shaped, and curved slightly outwards to a blunt apex; the longer branch is narrower than the other at its base, but expands into an extremity with somewhat the form of a bird's head—the "beak" being turned outwards; the narrower stalk of this branch—representing the neck of the bird—follows the curvature of the smaller branch; and both the apposed borders are lined with a series of small serrations.

Hab. Darnley Island. (Chevert Exped.)

ESSAY ON THE ICHTHYOLOGY OF PORT JACKSON.

By Count F. de Castelnau.

My intention is to give in this paper a list of all the species of bony fishes (*teleostei*) that have up to this day been observed in the great Harbour of Port Jackson, and in its immediate vicinity.

I know that this catalogue will be found very incomplete; it must only be considered as giving, as far as possible, the list of the sorts that have been quoted by authors as having been found at Sydney, and of all those I have, during a stay of nearly two years, been able to collect by daily visits to the fishmongers. Of those I have seen in a fresh state, I give a particular notice and a description of their colours, &c; this having generally been omitted by travellers; and most being only known from discoloured specimens in European Museums.

The study of Ichthyology is attended with much more difficulty than that of any other branch of zoology; not only are the species very numerous and often very difficult to distinguish one from the other, but they also present difficuties from their size and mode of preservation; a small box may contain a large number of insects; and it is the same with shells, and to a certain degree, with bird skins; fishes, on the contrary, are generally preserved in liquor; the vases that contain them are large, bulky, easily broken, and very difficult to transport. The rules of most of the Australian Museums do not allow specimens to be removed from their buildings; and whatever may be the kindness of the curators, they cannot break these rules. On the other hand, numerous books are required for the study of fishes; and those are not generally found in the scientific establishments of this country. These reasons explain why certain species from Sydney contained in the Australian Museum are not included or described in this paper.

The Brisbane and Adelaide Museums have adopted a different system, and have sent me all their fishes, and thus their Ichthyological collections, &c., are complesely named, while those of the other museums are the very reverse.

Mr. W. Macleay owns a splendid collection of Australian zoology, and has most liberally lent me specimens and valuable books. I am also indebted to him for several rectifications in the names of the species.

Mr. Ramsay, of the Australian Museum, has also done all in his power to assist me by lending me any of his own books I had not in my own library.

The species here mentioned as inhabiting Port Jackson, number two hundred and nineteen, of which one hundred and thirty have, till now, only been found in Australian waters, and eighty-six extend their habitat to other seas.

Of about one hundred and fifty sorts that have, to my knowledge, been observed in Hobson's Bay and its vicinity, only thirty-seven are included amongst those found at Sydney. This is a curious fact as these two localities are so near one another. If we examine the localities of the sorts found in other regions,

we find that by far the greatest part are from the Indian and Polynesian seas, and that some of these enter the Red Sea, that eight or nine extend to Japan, and nine or ten to New Zealand, seventeen to the Atlantic Ocean, and seven or eight to the European seas, most of them to the Mediterranean. It must, however, be recollected that at least three of these are doubtful, and will require numerous specimens to be closely compared.

The fish market of Sydney presents two different aspects; in winter, it contains only a very few sorts, of dark colour, and almost all the same as those found in the Melbourne sea, and exclusively Australian. In the warm months of the year appear the *denizens* of the Indian and Pacific oceans, adorned with all the splendid hues that nature seems so apt to lavish on the tropical sorts.

BERYCIDÆ.

Trachichthys Australis, *Shaw.*
Beryx affinis, *Gunth.* *Nanegai.*
? ? ? Monocentris Japonicus, *Houthuyn.*

PERCIDÆ.

Lates colonorum, *Gunth.* *Perch.*
Enoplosus armatus, *White.* *Old Wife.*
Serranus Damelii, *Gunth.* *Rock cod.*
dispar, *Steind.* *id.*
Merra, *Bloch,* *id.*
guttatus, *C. V.* *id.*
guttulatus, *Macleay.* *id.*
undulato-striatus, *Peters.* *id.*
Neoanthias Guntheri, *Cast.*
Plectropoma serratum, *C. V.*
annulatum, *Gunth.*
semicinctum, *C. V.*
cyanostigma, *Gunth.*
nigro-rubrum, *C. V.*
Priacanthus macracanthus, *C. V.*
Benmebari, *Schleg.*
Diacopus Bengalensis, *Bloch.*

Apogon fasciatus, *White.*
Novæ-Hollandiæ, *Val.*
Arripis truttaceus, *C. V.*
Glaucosoma Burgeri, *Rich.*

PRISTIPOMATIDÆ.

Therapon Cuvieri, *Bleek.*
servus, *Bloch.*
Helotes sexlineatus, *Quoy. & Gaim.*
Agenor modestus, *Cast. sp. nov.*

MULLIDÆ.

Upeneichthys porosus, *C. V. Pink cheek.*
Upenoides Vlamingii, *C. V. Red Mullet.*
Upeneus signatus, *Gunth.*

SPARIDÆ.

Malanichthys tri-cuspidata, *Q. & Gaim. Black Fish.*
simplex, *Richard.*
zonata, *Gunth.*
Lethrinus gliphodon, *Gunth.*
chrysostomus, *Rich.*
Pagrus unicolor, *Q. & Gaim. Schnapper.*
Chrysophrys Australis, *Gunth. Bream.*
Sarba, *Forst. Black bream.*
Aphareus roseus, *Cast. Sp. nov.*
Aplodactylus obscurus, *Cast. Sp. nov.*
lophodon, *Gunth.*

SQUAMIPINNES.

Atypichthys strigatus, *Gunth.*
Chætodon sexfasciatus, *Rich.*
Neochætodon vittatus, *Cast.*
Scatophagus multifasciatus, *Rich.*
Argus, *Linn.*
Scorpis æquipinnis, *Rich. Sweep.*

CIRRHITIDÆ.

Chironemus marmoratus *Gunth.*
Cheilodactylus fuscus, *Cast. Sp. nov.*

Cheilodactylus gibbosus, *Rich.*
annularis, *Cast. Sp. nov.*
Zeodrius vestitus, *Cast. Sp. nov.*
Latris ciliaris, *Forst.*

TRIGLIDÆ.

Scorpæna cardinalis, *Rich. Red Rock cod.*
cruenta, *Soland. Id.*
bynoensis, *Rich. Id.*
Sebastes percoides, *Rich. Id.*
Phatycephalus fuscus, *C.V. Flat-head.*
lævigatus, *C.V. Id.*
bassensis, *C.V. Id.*
cirronasus, *Gunth. Id.*
Centropogon robustus, *Gunth.*
Australis, *White.*
Pentaroge marmorata, *C. V. Fortescue.*
Trigla Kumu, *Garnot. Gurnet.*
pleuracanthica, *Rich. Id.*
polyommata, *Rich. Flying gurnet.*
Lepidotrigla Papilio, *C.V.*
Dactylopterus orientalis, *C.V.*
Synancidium horridum, *Linn.*
Pterois zebra, *C.V.*
volitans *Linn.*

TRACHINIDÆ.

Percis nebulosa, *C. V.*
maculata, *Q. & Gaim. Whiting.*
Sillago { Bassensis, *Cuv. V. id.*
Terræ-Reginæ, *Cast. olim.*
Leptoscopus macropygus, *Rich.*
Aphritis Urvillei, *C.V.**

SCIÆNIDÆ.

Sciæna { Aquila ? *Lacep. Jew fish.*
Antarctica, *Cast. olim.*

POLYNEMIDÆ.

POLYNEMUS Indicus, *Shaw.*

* The specimens from China belong probably to a different sort.

Polynemus macrochir, *Gunth.*

SPHYRÆNIDÆ.

Sphyræna Novæ-Hollandiæ, *Gunth.* *Pike.*
Neosphyræna multiradiata, *Cast.*

SCOMBRIDÆ.

Zeus { Faber ? *Linn.* *John Dorey.*
Australis, *Rich.*
Scomber Antarcticus, *Cast.* *Mackerel.*
Elacate nigra, *Bloch.* *King Fish.*
Naucrates ductor, *Bloch.* *Pilot fish.*
Echeneis naucrates, *Linn.*
remora, *Linn.*
Auxis Ramseyi, *Cast. nov. sp.* *Horse mackerel.*
Cybium Commersonii, *Lacep.* *Id.*
Thynnus Pelamys, *Linn.* *Id.*
Brama Raii, *Bloch.*

CARANGIDÆ.

Seriola Lalandii, *C.V.*
hippos, *Gunth.*
grandis, *Cast.*
nigrofasciatus, *Ruppel.*
Trachurus { declivis, *Jenyns.*
Trachurus ?* *Bellon.*
Trachinotus ovatus, *Linn.*
Bailloni, *Lacep.*
Blepharis ciliaris, *Bloch.*
Pempheris compressus, *White.*
Temnodon Saltator, *Linn.* *Taylor.*
Caranx georgianus, *C.V.* *White Trevally.*
macrosoma, *Bleek.* *Yellow-tail.*
Psenes leucurus, *C.V.*
Psettus argenteus, *Lacep.*

XIPHIDÆ.

Histiophorus gladius, *Linn.*

* If, after careful comparison of a large number of specimens, it was proved that this is really *Trachurus*, then it would be found nearly all over the world.

GOBIIDÆ.

Eleotris Australis, *Gunth.*
mogurnda, *Rich.*

BATRACHIDÆ.

Batrachus dubius, *White.*

PEDICULATI.

Antennarius pinniceps, *C. V.*
Commersonii, *C. V.*

BLENNIDÆ.

Cristiceps antinectes, *Gunth.*
aurantiacus, *Cast. Sp. nov.*
Macleayi, *Cast. Sp. nov.*
Patæcus { fronto, *Rich.* / maculatus, *Gunth.*
Petroscirtes variabilis, *Cantor.*
analis, *C. V.*
Stichærium dorsale, *Gunth.*
Blennius unicornis, *Cast. Sp. nov.*

TEUTHIDÆ.

Teuthys Javus, *Linn.*
nebulosa, *Q. & Gaim.*

NANDIDÆ.

Ruppelia prolongata, *Cast. Blue-fish.*
Trachinops tæniatus, *Gunth.*

ATHERINIDÆ.

Atherina pinguis, *Lacep. Hardy Head.*
Atherinichthys Jacksoniana, *Q. & Gaim.*

MUGILIDÆ.

Mugil dobula, *Gunth. Hard-gut mullet.*
Peronii, *C. V. Fan-tail mullet.*
grandis, *Cast. N. sp.*
Myxus elongatus, *Gunth.*

FISTULARIDÆ.

Fistularia, serrata, *Cuv.*

POMACENTRIDÆ.

Heliastes hipsilepis, *Gunth.*
Pomacentrus unifasciatus, *Gunth.*
Parma microlepis, *Gunth.*
squamipinnis, *Gunth.*

LABRIDÆ.

Trochocopus unicolor, *Gunth.*
Labrichthys gymnogenis, *Gunth.* *Parrot-fish.*
Parila, *Rich.* *id.*
luculentus, *Rich.* *id.*
nigro-marginatus, *M. L.* *id.*
laticlavius, *Rich.* *id.*
Cossyphus unimaculatus, *Gunth.* *Pigfish.*
vulpinus, *Rich.*
Gouldii, *Rich.* *Blue groper.*
Coris lineolata, *C. V.* *Parrot-fish.*
Odax semifasciatus, *C. V.* *id.*
balteatus, *C. V.* *id.*
obscurus, *Cast.* *id.*
Olistherops { cyanomelas, *Rich.* / brunneus ?* *Macleay.*
Heteroscarus Castelnaui, *Macleay.*

GERRIDÆ.

Gerres ovatus, *Gunth.*
subfasciatus, *C.V.*

GADIDÆ.

Lotella callarias, *Gunth.*
rubiginosa, *Gunth.*

PLEURONECTIDÆ.

Rhombosolea flesoides, *Gunth.* *Sole.*
Pseudorhombus Russelii, *Gray.* *Flounder.*
Synaptura quagga, *Kaup.*

* I consider Mr. Macleay's sort as only a variety, because out of the large number of specimens I have seen at Melbourne I have found the greatest variations, not only in colour but also in form. Some specimens are much more convex than others, some have the external rays of the caudal fin elongated, some are black, some are spotted with blue, some are of a reddish-brown, with or without spots.

Pardachirus pavoninus, *Lacep.*
Ammotretus rostratus, *Gunth.*
Solea microcephala. *Gunth.*

SILURIDÆ.

Cnidoglanis Megastoma, *Rich.* *Cat-fish.*
lepturus ? *Gunth.* *Dog-fish.*

SCOPELIDÆ.

Saurida nebulosa, *C.V.*
Australis, *Cast.* *N. sp.*
undosquamis, *Rich.*
Saurus Myops, *Bloch.*
Aulopus purpurissatus, *Rich.* *Sarjeant Baker.*

SCOMBRESOCIDÆ.

Hemirhamphus regularis, *Gunth.* *Gar-fish.*
melanochir, *C.V.* *id.*
{ argenteus, *Bennet.*
{ breviceps, *Cast. olim.*
Belone ferox, *Gunth.* *Long Tom.*

CLUPEIDÆ.

Elops saurus, *Linn.*
Chanos salmoneus, *Bloch.*
Clupea Moluccensis ? *Bloch.* *Sprat.*
Sagax, *Jenyns.* *id.*
hypselosoma. *id.*
Etrumeus Jacksoniensis, *Macleay.*

MURÆNIDÆ.

Ophichthys Serpens, *Linn.*
Muræsox Bagio, *Kaup.* *Sea Eel.*
Myrophis Australis, *Cast.* *N. sp.* *id.*
Muræna silurea, *Richard.* *id.*
afra, *Bloch.* *id.*
Conger ? labiata, *Cast.* *N. sp.* *id.*
Anguilla Australis, *Rich.* *Eel*

SYNGNATHIDÆ.

Stigmatophora Argus, *Rich.*
nigra, *Kaup.*

Syngnathus tigris, *Cast.* *N. sp.*
margaritifer, *Peters.*
Phyllopteryx foliatus, *Shaw.* *Sea-horse.*
Hippocampus Novæ-Hollandiæ, *Steind.* *id.*
tristis. *Casteln.*

SCLERODERMES.

Balistes Jacksonianus, *Q. & Gaim.* *Leather-jacket.*
Monacanthus Ayraudi, *Q. & Gaim.* *id.*
convexirostris, *Gunth.* *id.*
granulatus, *White.* *id.*
megalurus, *Rich.* *id.*
tomentosus, *Linn.* *id.*
Peronii, *Hollard.* *id.*
penicilligerus, *Cuvier.* *id.*
hippocrepis, *Q. & Gaim.* *id.*
platifrons, *Hollard.* *id.*
maculosus, *Rich.* *id.*
rudis, *Rich* *id.*
spilomelanurus, *Q. & Gaim.* *id.*
prasinus, *Cast.* *id.*
obscurus, *Cast* (1). *id.*
brunneus, *Cast. olim.*
Damelii, *Gunth.*

OSTRACIONTINA.

Ostracion diaphanus, *Bloch.* *Coffin-fish.*
concatinatus, *Bloch.* *id.*
Aracana lenticularis, *Rich.* *id.*

GYMNODONTES.

Tetrodon immaculatus, *Block.* *Toad-fish.*
hispidus, *Bl.* *id.*
lunaris, *Bl.* *id.*
Hamiltoni, *Rich.* *id.*
amabilis, *Cast.* *Sp. nov.* *id.*

(1) I had described this sort under the name of *Brunneus* (Proceed. Zool. Soc. of Victoria, 1873, p. 145); but having myself, by mistake, given the same name to an other sort, I changed it to the present one (Researches on the Fishes of Australia, Feb., 1876, p. 51.) included in the Victorian Exhibition Papers for 1876. In the same year, May, 1876, Dr. Gunther proposed for the same sort the name of *Damelii*. (Annals Mag. of Natural History.)

Tetrodon hypselogenion, *Gunth.* *id.*
firmamentum, *Schleg.* *id.*
lævigatus, *Linn.* *id.*
Diodon novemmaculatus, *Cuv.* *Sea-hog or globe.*
Hystrix, *Linn.* *id.*
Dicotylichthys punctulatus, *Kaup.*

The following sorts appear to be confined to Australian waters:—

Trachichthys Australis.
Lates colonorum.
Enoplosus armatus.
Serranus Damelii.
guttulatus.
Plectropoma serratum.
annulatum.
nigrorubrum.
Apogon fasciatus.
Novæ-Hollandiæ.
Arripis truttaceus.
Glaucosoma Burgeri.
Helotes sexlineatus.
Agenor modestus.
Upeneus signatus.
Melanichthys tricuspidata.
simplex.
zonata.
Pagrus unicolor.
Lethrinus chrysostomus.
Chrysophrys Australis.
Aplodactylus obscurus.
lophodon.
Chætodon sexfasciatus.
Neochœtodon vittatus.
Scatophagus multifasciatus.
Scorpis æquipinnis.
Chironemus marmoratus.
Cheilodactylus fuscus.

Cheilodactylus gibbosus.
annularis.
Zeodrius vestitus.
Scorpæna cardinalis.
bynoensis.
Platycephalus lævigatus.
bassensis.
cirronasus.
Centropogon robustus.
Australis.
Trigla pleuracanthica.
Trigla polyommata.
Percis nebulosa.
Sillago maculata.
bassensis.
Leptoscopus macropygus.
Aphritis Urvillei.*
Polynemus macrochir.
Sphyræna Novæ-Hollandiæ.
Neosphyræna multiradiata.
Scomber antarcticus.
Auxis Ramseyi.
Seriola hippos.
grandis.
Trachurus declivis ? ?
Pempheris compressus.
Caranx georgianus.
Eleotris Australis.
mogurnda.
Batrachus dubius.
Cristiceps antinectes.
Macleayi.
aurantiacus.
Blennius unicornis.
Patæcus fronto.

* The specimens from China are most probably of a different sort.

Petroscirtes analis.
Stichariuin dorsale.
Ruppelia prolongata.
Trachinops tæniatus.
Atherinichthys Jacksoniana.
Mugil Peronii.
grandis.
Myxus elongatus.
Heliastes hipsilepis.
Pomacentrus unifasciatus.
Parma microlepis.
sqamipinnis.
Trochocopus unicolor.
Labrichthys gymnogenis.
Parila.
luculenta.
nigromarginata.
laticlavius.
Cossyphus unimaculatus.
vulpinus.
Coris lineolata.
Odax balteatus.
obscurus.
Olistherops cyanomelas.
Heteroscarus Castelnaui.
Gerres ovatus.
subfasciatus.
Lotella callarias.
rubiginosa.
Rhombosolea flesoides.
Pseudorhombus Russellii.
Ammotretus rostratus.
Solea microcephala.
Cnidoglanis megastoma.
lepturus.
Saurida Australis.
undosquamis.

Aulopus purpurissatus
Hemirhamphus regularis.
argenteus.
Belone ferox.
Clupea hypselosoma.
Etrumeus Jacksoniensis.
Myrophis Australis.
Muræna silurea.
Conger ? labiata.
Anguilla Australis.
Stigmatophora nigra.
Syngnathus tigris.
margaritifer.
Phyllopteryx foliatus.
Hippocampus Novæ-Hollandiæ.
Balistes Jacksonianus.
Monacanthus Ayraudi.
convexirostris.
granulatus.
megalurus.
Peronii.
hippocrepis.
platifrons.
maculosus.
rudis.
spilomelanurus.
prasinus.
obscurus.
Aracana lenticularis.
Tetrodon amabilis.

The species that are also found in other seas than the Australian are :—

??? Monocentris japonicus. *Japan.*
Beryx affinis. *N. Zeal.*
Serranus dispar. *Indian Sea.*
Merra. *Id.*
guttatus. *Ind. Sea, Polynesia.*

Serranus undulato-striatus. *Ind.*
Neoanthias Guntheri. *Moluccas.*
Plectropoma semicinctum. *Chili.*
cyanostigma. *Moluccas.*
Priacanthus macracanthus. *Id. Japan.*
benmebari. *Japan.*
Diacopus bengalensis. *Ind. Polynesia.*
Therapon cuvieri. *Moluccas*
servus. *India.*
Upeneichthys porosus. *N. Zealand.*
Upeneoides Vlamingii. *N. Zeal. Moluccas.*
Lethrinus glyphodon. *Louisiad.*
Chrysophrys sarba. *Red & Ind. Sea.*
Aphareus roseus. *Moluccas.*
Atypichthys strigatus. *N. Hebrides.*
Scatophagus argus. *India.*
Latris ciliaris. *N. Zealand.*
Scorpœna cruenta. *Id.*
Sebastes percoides. *Id.*
Platycephalus fuscus. *Pacific.*
Pentaroge marmorata. *Timor.*
Trigla kumu. *N. Zeal.*
Lepidotrigla papilio. *Indian.*
Dactyloptera orientalis. *Indian Sea.*
Synancidium horridum. *Ind.*
Pterois zebra. *Ind.*
Pterois volitans. *Ind.*
Scicœna aquila. *Atlantic, Medit., Cape G. Hope.*
Polynemus Indicus. *Ind. Sea.*
Zeus faber ? *Medit. Atlant.*
Elacate nigra. *Antilles, Ind., Japan.*
Naucratis ductor. *Europe, N. Amer., Madeira, C.G.H.*
Echeneis Naucrates. *N. & S. Amer., Madeira, Ind., China.*
Remora. *Europe, Madeira, C. G. H., Ind., China.*
Cybium Commersonii. *Ind.*
Thynnus Pelamys. *Atlan., Ind.*
Brama Raii. *Atlant., Medit,, C.G.H. ?*

Seriola Lalandii. *S. Amer.. Japan, C.G.H ?*
nigro-fasciata. *Red & Indian Seas.*
Trachinotus ovatus. *Atlant. Ind.*
Bailloni. *Ind.*
Blepharis ciliaris. *Red & Ind.* Seas.
Temnodon Saltator. *N. & S. Amer., Ind.*
Caranx macrosoma. *Moluccas.*
Psenes leucurus. *Ind.*
Psettus argenteus. *Red & Ind. Seas, Polynesia.*
Antennarius pinniceps. *Ind.*
Commersonii. *Ind., Moluc.*
Histiophorus gladius. *Europe, Atlant.*
Petroscirtes variabilis. *Ind.*
Teuthys Javus. *Ind.*
nebulosa. *Polynesia.*
Atherina pinguis. *Ind., Polynesia.*
Mugil dobula. *Polynes.*
Fistularia serrata. *Ind. China.*
Odax samifasciatus. *Ind ?*
Synaptura quagga. *China.*
Pardachirus Pavoninus. *Ind.*
Saurida nebulosa. *Ind., Polyn.*
Saurus myops. *Antilles, Ind., Polyn.*
Hemirhamphus melanochir. *Ch. N.Zeal.*
Elops Saurus. *Antilles, S. Amer., Ind. & Red Seas.*
Chanos salmoneus. *Red, Ind., China & Pacific Seas.*
Clupea moluccensis. *Ind., Moluc.*
sagax. *Japan, Amer. Pacific, N.Z.*
Ophichthys serpens. *Medit., Atlant., Japan.*
Murœnesox Bagio. *Ind., Japan.*
Murœna afra. *Atlant., Antilles, Ind.*
Stigmatophora argus. *N. Guinea.*
Monacanthus tomentosas. *Ind., China.*
penicilligerus. *Ind.*
Ostracion diaphanus. *Japan, C. G. Hope.*
concatinatus. *China, C. G. Hope.*
Tetrodon lunaris. *Atlant. Pacific, Moluccas.*

Tetrodon immaculatus. *Red, Ind, & Polynesian Seas.*
hispidus. *Red, Indian Seas.*
hypselogenion. *Ind. Polynes.*
firmamentum. *Japan.*
lœvigatus. *Atlant* (*Brazils*).
Diodon novemmaculatus. *Atlant., Pacific, Ind.*
hystrix. *Id. Id. Id.*
Dicotylichthys punctulatus *South Indian Sea.*

Of about one hundred and fifty sorts known as inhabiting Hobson's Bay and its immediate vicinity, the following thirty-six only are, to my knowledge, found in Port Jackson. This number will, of course, be modified, but I consider it as very remarkable between two localities only six hundred miles apart:—

Lates Colonorum.*
Enoplosus armatus.
Arripis truttaceus.
Upeneichthys porosus.
Upeneus Vlamingii.
Melanichthys tricuspidata.
simplex.
zonata.
Pagrus unicolor.
Chrysophrys Australis.
Chironemus marmoratus.
Cheilodactylus gibbosus.
Sebastes percoides.
Platycephalus fuscus.
bassensis.
laevigatus.
Trigla polyommata.
Sillago maculata.
Sphyræna Novæ-Hollandiæ.
Neosphyræna multiradiata.
Sciæna Aquila ?

* Not found at Melbourne, but brought there in great numbers from the Gippsland Lakes.

Scomber antarcticus.
Zeus faber ?
Seriola grandis.
Caranx georgianus.
Temnodon Saltator.
Mugil grandis.
Olistherops cyanomelas.
Aulopus purpurissatus.
Hemirhamphus melanochir.
Auguilla Australis.
Hippocampus tristis.
Phyllopteryx foliatus.
Monacanthus Peronii.
prasinus.
Tetrodon hispidus.

Trachichthys Australis.

Trachichthys Australis, Shaw ; Nat. Miscel., pl. 376.

Scales, rough ; those of the lateral line not larger; the serrated ventral keel composed of ten scales ; the height of the body contained once and four-fifths in total length, without the caudal fin ; upper profile, convex ; the fish almost round until the end of the dorsal and anal fins ; a very strong and serrated spine on the scapular bone ; head contained twice and three-fourths in the total length to the base of the caudal ; eye, very large, contained a little over twice in the length of the head ; scales, strongly ciliated ; a strong flat spine at the angle of the opercle ; mouth, rather extensible ; teeth, villiform, none on the palate ; lower jaw longer than the upper one ; the snout is one-third the length of the diameter of the orbit ; two bony ridges run from the orbit to the edge of the præopercle ; this is finely denticulated on its lower part ; the lateral line is elevated on its posterior half ; the upper dorsal is formed of four spines and twelve rays ; the first of these rays is simple ; the caudal is very strongly forked ; the anal has two spines and ten rays—the first of these equally simple ; the ventrals have one spine and six rays, the first of which is simple and serrated except at its extremity.

Entirely of a reddish brown; caudal black, with a broad white border all round; dorsal and anal dark, with the base and the anterior part white; pectorals and ventrals reddish, with the spine of the last white.

One single specimen seen on the 19th of September, 1877. It is five and a half inches long.

BERYX AFFINIS.

Beryx Affinis, Gunther; Catal., vol. I., p. 13.

Cast.; Proceed. Linn. Soc. of N.S.W., vol. II., p. 225.

This fish, known as the *Nanegai*, is more particularly found in the warm season, but it sometimes appears in May, July, and August. It is at times very numerous; and by its splendid pink colour attracts notice amongst the generally dark coloured fish exposed in the Australian markets.

MONOCENTRIS JAPONICUS.

Monocentris Japonicus, Houttuyn; Act. Harbm., XX., p. 329.

A fine specimen of this sort, preserved in liquor, and given by M. Fitzhardinge, is in the Sydney Museum, and is said to have been found at Port Jackson. No other specimen has ever been seen; and if this is really Australian, it must have been driven from Japan by one of Nature's great convulsions, and even then it could not be considered as inhabiting the Australian coast.

I only mention it here because Mr. Gerard Krefft includes it in his list of Australian fishes. (Industrial Progress of New South Wales, 1871.)

LATES COLONORUM.

Lates Colonorum, Gunther; Ann. Nat. History, 1863, vol XI., p. 114.

Cast.; Proceed. Zool. Soc. Victor. vol. I., p. 43.

Called in Sydney *Perch*; is found in great quantities in the swamps near Newcastle; is commonly brought to the Sydney market in June and July. It is also found in the Gippsland Lakes.

SERRANUS DAMELII.

Serranus Damelii; Gunther's Ann. and Magas. Nat. Hist., vol. XVII., p. 391; 4th Series, 1876.

Black Rock Cod.

Entirely of a purplish black; generally a black spot on the

base of the tail at the end of the soft dorsal; extremity of the caudal black, with a white fringe. In some specimens, when fresh, there are faint traces of blue spots; body, elongate; its height about three times in the total length, without the caudal; head contained twice and a half in the same; canine teeth, very strong; preopercle, very finely serrated behind; the central spine of the opercle strong; body scales very small; dorsal formed of eleven spines—the two first lower than the third, the others becoming rather shorter as they extend backwards; the soft part rather higher than the spines, of fourteen rays; caudal rounded; anal with three spines, of which the first is shorter, and the others almost equal.

This sort attains two feet in length, and is esteemed for the table.

SERRANUS UNDULATO-STRIATUS.

Serranus undulato-striatus, Peters, Monatsber, Ak. Wiss. Berlin, 1866, p. 518.

Body compressed, high, with the head rather pointed; the greatest height of the body contained twice and a half in the total length without the caudal fin; head contained less than twice and a half in the same; body covered with moderate scales; those on the cheeks and opercles much smaller; the præopercle finely denticulated on its posterior edge, with two or three much larger spines at the angles; dorsal fin with eleven spines and fifteen rays; the third spine is the longest; caudal rounded; anal with three spines and seven rays; the second spine the strongest. Entirely of a very light creamy brown; all over the body numerous, rather narrow, more or less oblique stripes of a reddish brown; soft dorsal and anal, and also the caudal fin bordered with very bright yellow; the other part of the fins rather dark; pectorals yellow.

The specimen is eleven inches long.

NEOANTHIAS.

Seven branchiostegals; teeth villiform, without canines in either jaw, but with an outer line of larger ones in front; teeth on the palatine bones and on the tongue; one dorsal fin with ten spines; anal fin with three; opercule with two flat spines; præo-

percle finely and equally serrated, but no spines on the lower limbs; scales large; no denticulations on the præorbital; some of the pectoral rays elongate.

NEOANTHIAS GUNTHERI.

Body oval, compressed; its height contained about twice and three-quarters in the total length, without the caudal fin, or nearly three times including this; head, three times and one-third in the same length; eye large, contained about four times and-a-half in the length of the head; this is entirely covered with scales much smaller than those of the body; the lower jaw rather longer than the upper; when the mouth is closed, the maxillary reaches the centre of the orbit; the scales of the anterior part of the back similar; lateral line continuous, but not extending on the caudal fin; about seventy-five scales on the lateral line; dorsal with ten very strong spines, of which the first is the shortest and the fifth the longest; the soft part is equal in height to the other, and formed of twenty-one rays; the caudal is large, strongly emarginated with two rather elongated and pointed lobes, which are equal to about one-half the length of the fin; anal with three strong spines, of which the first is rather short and the two others nearly equal and more than twice as long; and only twice and two-thirds in the total length without the caudal; the soft part has eight rays; ventrals, large; pectorals very large, scaly at the base, of nineteen rays, of which the 8th, 9th, 10th, 11th, and 12th are nearly simple, being only divided over their extremity; these are much longer than the others, and the eleventh is remarkably so, and extends considerably further than its membranes; this pectoral fin reaches to the vertical from the origin of the anal; its length is equal to the height of the body; the teeth are very numerous, particularly disposed in two bunches in front; there is an external line of rather larger ones, but no true canines; on the lower jaw, there are on each side, in front, three or four larger ones, conical and directed forwards; the palatine teeth form three large patches; the opercle has a very strong upper spine, and a much weaker lower one; this is flat and is denticulated on its edge.

The colour is of the most magnificent pink, with numerous

irregular and very little defined yellow stripes, running obliquely on the back; an oblique stripe of that colour on the opercle, below the eye, and others on the front of the head; on the back part of the back there are dark transverse lines, very irregular and not defined; the dorsal is of a beautiful yellow, with the rays pink; a large black blotch covers the two anterior thirds of the soft part, which is edged with pink; the caudal is yellow; the anal is pink, with each membrane having two or three rounded spots of a fine yellow; ventrals and pectorals yellow, with the rays pink; the membranes of the fins are covered with small scales nearly the entire length. It must be very near to *Anthias longimanus* of Gunther, but some of the proportions are different. The present fish seems to be more elongate; the lobes of the caudal and the pectorals shorter; the scales less numerous.

This beautiful fish was caught on the 19th of July, 1878, and is a little over eighteen inches long.

PLECTROPOMA SERRATUM.

Plectropoma serratum; Cuv. Val., vol. I., p. 399.
Quoy and Gaim; Astrolabe Fish, pl. 2, p. 1.

Body very high, short; its height twice and-a-half in the total length, without the caudal fin, or twice and four-fifths with the latter; the head is more than one-third of the total length; the eye is contained five and-a-half times in the head; there is a series of very large outer teeth, but no real canines; præopercle with strong teeth behind, becoming still stronger at the angle, with two very strong spines on the lower edge; these are about equal; the opercle has three spines; the first dorsal has thirteen strong spines—the 3rd, 4th, 5th, and 6th are the longest; the soft part has fifteen rays, and is as high as the longest part of the spiny portion; caudal fin, rounded; the anal has three spines, the central one the longest, and eight rays.

The fish is entirely of an olive yellowish green, covered with small rounded blue spots each covering four scales; the fins similarly spotted, with the exception of the ventrals and pectorals, which are dark green; length, thirteen inches.

I have very little doubt that this is the sort described by

Cuvier from King George's Sound. It comes very near to *cyanostigma*, but the body seems to be much shorter and higher, and the opercular teeth different. By its colouration, it resembles also *Plectropoma maculatum*, Bloch; very handsomely figured by Dr. Gunther in the Jour. Mus. Godeffroy, but differs equally by its high body, the form of the caudal, &c.

PLECTROPOMA ANNULATUM.

Plectropoma annulatum; Gunther's Catal., vol. I., p. 158.

Body short; præopercle serrated behind; having a flat serrated spine at the angle and two small ones below; opercle serrated below, with two strong spines near its angle; caudal fin rounded; dorsal, with its two portions so deeply divided as to almost have the appearance of two fins; it is formed of ten spines, of which the fourth and fifth are the longest, and of eighteen rays; the anal has three spines and seven rays.

The general colour is of a handsome light brown, with six broad transverse black bands, of which two are placed on the tail; there is a longitudinal black stripe in front of the head, and three others on the upper part of the head, running obliquely—two from the back to the eye, and one on the opercle; those of the back extend on the dorsal fin.

The dorsal and caudal are of the colour of the body, and the other fins are of a beautiful crimson. The specimen is a little under nine inches long.

This sort is nearly allied but very distinct, from *Plectropoma nigro-rubrum* of the Western Coast, which it seems to represent on the Eastern one. Dr. Gunther has very well described this fish, but did not know its habitat.

PRIACANTHUS MACRACANTHUS.

Priacanthus macracanthus; Cuv. Val., vol. III., p. 108.

Bleekeri, Cast; Proceed. Zool. Soc. Victoria, vol. II., p. 100.

The height of the body is contained three times and-a-half in the total length, without the caudal fin; head three times and one-third in the same; diameter of the eye more than one-third the length of the head; the angle of the præopercle having a

very long flat serrated spine; opercle rather feebly emarginated; caudal fin strongly emarginate; the spines of the fins slender, with a striated surface; ventrals large, nearly as long as the head (upper jaw); the third spine of the anal the longest; mouth extensible.

Of a light silvery grey, washed with pink; head of the last colour; belly, silvery; fins of a reddish pink; the back part of the dorsal, the anal, and ventrals having two rounded dark spots on each membrane; the ventrals red; the end of the caudal rather dark.

Obtained several times in May at Port Jackson. Length of specimens eight to twelve inches.

Apogon fasciatus.

Mullus fasciatus, White; Voy. N.S. Wales, p. 268, f. 1.

This pretty little fish appears sometimes in the Sydney market, principally in March. It has seven spines in its first dorsal, but the first is so short as to be easily overlooked; the third spine is the longest; the height of the body is contained three times in the total length of the fish; the eye is less than three times in the length of the head.

The colour is of a handsome light lilac, with three longitudinal black brown streaks—one at the base of the dorsal, and the others on the sides of the body; below this, there is another very faint one; the lower parts of the body are reddish, and the fins are scarlet, with a black stripe at the base of the second dorsal and at the anal; on the caudal, the central black band extends on all its length; and its edges and extremities are also black.

This is certainly the *Mullus fasciatus* of White; but it is doubtful if the different synonymes quoted by Dr. Gunther do apply to the same sort; *novem fasciatus*, and other Indian species seem to me to be different; otherwise, Dr. Gunther's figures (Mus. Godeffroy, pl. 20, fig. A. and B.) would be very incorrect. The Australian fish has the body higher, the eye a great deal larger, the snout more advanced, the opening of the mouth more oblique, and the colours very different.

Agenor.

Teeth villiform on both jaws with a series of sharp conical pointed teeth on the vomer and palatines; no molars; cheeks and opercles scaly; vertical fins in great part covered with scales; dorsal fin not notched; of ten spines; scales rather small, body high, compressed.

This new genus belongs to the *Pristipomatidæ*.

Agenor modestus.

The height of the body is contained once and three-fourths in the total length, without the caudal fin; the head is three times and-a-half in the same; and the diameter of the eye twice and one-fourth in the length of the head; the snout is not more than one-half the diameter of the eye; the lower jaw is a little longer than the upper one; the maxillary extends to the perpendicular from the anterior quarter of the eye; the præorbital is finely serrated; the head is entirely covered with scales except on the snout; the præopercle is finely serrated; there is a feeble spine on the opercle; lateral line continued on the base of the caudal fin; the first dorsal spine is very small, the others gradually increasing in length, the soft portion in a scaly sheath, formed of twenty-six rays; the caudal long, bifid, not complete in my specimen; the anal with three spines and twenty-six rays; the ventrals placed very near one another; the body very compressed.

The fish is of a dark silvery colour, with the upper parts nearly black; the fins dark; the pectorals rather yellow.

The specimen is nearly four inches long.

Upeneichthys porosus.

Upeneichthys porosus; Cuv. Val., vol. III., p. 455.

Also found at Melbourne; known at Sydney under the name of Pinkcheek.

Entirely of a fine flesh orange colour; streaks on the sides of the head, orange; a longitudinal dark stripe on the sides following the line of the back; end of the barbels and pectorals of a fine sulphur colour.

Not common; February and May.

UPENOIDES VLAMINGII.

Upenoides Vlamingii; Cuv. Val., vol. III., pl. 71.

Already observed at Melbourne. This sort seems to be subject to much variety in colour.

The specimens seen at Sydney were of a dark brown or scarlet on the back; each body scale had a small round spot of a fine light blue; some lines of this last colour extend in an oblique way from the eye to the mouth; sides of the head and of the body of a beautiful crimson colour; dorsal and caudal fins, brown, spotted with blue; pectorals translucent; ventrals and anal of a dark crimson red.

Tolerably abundant, particularly in May.

LETHRINUS GLYPHODON.

Lethrinus glyphodon? Gunther; Cat. Vol. I, p. 462.

The body is convex, high, contained three times in the total length of the fish; the head a little over three times and a-half in the same; the snout elongate and pointed; the diameter of the eye is contained twice in the length of the snout. The upper maxillary reaches to the vertical from the posterior nostril; molar teeth on the posterior part of the jaws; the canine ones of moderate size; the fifth dorsal spine is the longest, the others gradually decrease; some of the dorsal spines are alternately rather thicker than the others. The pectorals long, extending to the base of the anal. Caudal fin very strongly emarginate.

Of a dull olive colour, with very indistinct lighter spots on a part of the scales; cheeks and opercles yellow; dorsal fin with indistinct dark spots; others forming two transverse lines on the caudal.

The specimen is about thirteen inches long. I believe it is the same as *glyphodon*, described from specimens brought from the Louisiade Archipelago by Macgillivray.

PAGRUS UNICOLOR.

Pagrus unicolor, Quoy. & Gaim; Uranie, p. 299.

The *Schnapper* is very common at Sydney, but the specimens are generally small. At Melbourne, the very large old males have alone the curious frontal protuberance that give such an extraordi-

nary appearance to some of the specimens; but at Sydney, I have often seen very young males having to a less degree the same formation.

CHRYSOPHRYS AUSTRALIS.

Chrysophrys Australis; Gunther's Catal., vol. I., p. 494.

The common *Bream* always to be seen in the Sydney market.

CHRYSOPHRYS SARBA.

Chrysophrys Sarba; Forsk, p. 31.

Cuv. Val., vol. VI., p. 102.

Black Bream, at Sydney; body very high; contained rather over twice in total length, without the caudal fin; head a little over three times in the same; pectorals very long; dorsal with eleven spines—the fourth the longest, and eleven rays; caudal very forked; anal with three spines and eight rays; the first of these spines short, the second very strong and very long, the third shorter.

Of a beautiful gilt colour, with the operculum dark, almost purple; the fins hyaline, with the rays yellow; the dorsal edged with black; the caudal having its external half black; the anterior part of the head dark.

From twelve to elghteen inches long. The teeth are strong, conical, rather arched; the molars in four series above and in three below.

APHAREUS ROSEUS.

Body oblong; its height equal to the length of the head, and contained three times and a half in the total length, without the caudal fin; fin rays feeble; dorsal with ten spines and eleven rays; the fourth and fifth being the longest, and the others become rather shorter as they extend backwards; caudal much forked; anal, with three feeble spines, the first the shortest, and the third the longest, and eight rays, the last ray of the dorsal and of the anal at least twice as long as the preceding; body scales large; the præopercle covered with oblique striæ, and finely serrated on its edge; the opercles scaly; pectorals and ventrals long; the first nearly of the length of the head. Colour of a beautiful soft pink; the lower parts of a silvery white; general form of *Dentex*; there are sixty-four scales on the lateral line.

I have only seen one specimen of this beautiful fish. It was caught on the 20th of March, 1878. It measures nearly two feet in length. The anterior part of the head seems to have been injured at a previous part of its life, probably by the bite of some other fish, as the snout seems to be abnormally short.

If it had not been for the very good figure given by Cuvier and Valenciennes of a species of this genus *(furcatus*, pl. 167), I should not have been able to find it out in the system, as the characters of the genus given by Dr. Gunther are very defective, He says, "Præoperculum entire, scales rather small." Cuvier, on the other hand, figures and describes the strong striæ of the præopercle, which in some sorts become a striated edge; but having only seen one specimen, I cannot say if this character is permanent. This sort seems to me to be the one that Dr. Blecker thinks (Amboyna, p. 52) to belong to *rutilans* of Cuvier, but it is very different, by the number of its spines and rays.

It would thus be an inhabitant of the Molluccas, and would visit the east coast of Australia during the warm months of the year.

In the journal, Mus. Godeff. Fishes No. III, p. 16, Dr. Gunther places *Aphareus cœrulescens* under the name of *furcatus*, Lacep. III, p. 421, and 477, fig. 1.

In that work he places this genus between *Aprion* and *Priacanthus*. In the catalogue he had placed it in the *Pristipomatidæ*, and Cuvier places it in an appendix to the *Sparoidæ*.

Aplodactylus obscurus.

On each jaw two lines of tricuspid teeth; some of these teeth are single pointed, but serrated on their sides; the cheeks and opercles are covered with small scales; the head is high; rounded in front; depressed behind the eyes; the back rather gibbous in front; pectorals with seven simple rays, of which the seventh, or the uppermost, is the longest; it projects only very little beyond its membrane. The dorsal has seventeen spines, the fifth and sixth of which are the longest; the soft part of the fin is formed of nineteen rays, nearly three times as long as the last spine; the caudal is forked;

the anal has three spines and six rays; the body scales are rather large; along the base of the spinous dorsal there is a sheath covered with very minute scales; the colour is nearly black; the dorsal, caudal, and anal fins are variegated with grey; the largest specimen is thirteen inches in length; the other about nine; only seen twice in the Sydney market in September. The form of the teeth obliges me to put this fish in the genus *Aplodactylus*, but it evidently comes very near *Chironemus*, and I certainly think that, on account of the simple lower rays of the pectorals, ought to be placed in the same family; the number of the simple rays (seven) does not allow me to unite this fish with the species *arctidens* or *lophodon*.

ATYPICHTHYS STRIGATUS.

Atypus strigatus, Gunth. Catal., vol. II, p. 64.

This fish looks very much like some species of *Chætodon*, but the body is of a longer oval; it is silvery white, with five very broad longitudinal brown stripes on the sides, and on the sides of the head; fins of a bright yellow; it does not attain more than five or six inches in length; very common at Port Jackson, and usually used as bait by the fishermen.

NEOCHÆTODON VITTATUS.

Neochætodon vittatus, Cast., Proceed. Zool. Soc. of Victoria, vol. II., page 130.

Specimens entirely similar to the one from Swan River are caught at Port Jackson; it resembles very much Cuvier's figure of *Chætodon strigatus*, and I should have united it with it if it had not been for the opercule, which is strongly emarginated on its upper part, forming thus two points.

The specimens are usually five inches long; when fresh, they are of a silvery-white, with five or six broad brown longitudinal stripes on the sides; the lower ones being oblique; the base of the caudal is of the same colour; the stripes extend on the head, and two of them follow the forehead; there is also one in front of the eye.

Found in the warm season.

Scatophagus multifasciatus.

I have obtained, at Sydney, a very pretty variety of this species. It is a very large specimen, measuring sixteen inches in length; of a beautiful light grey colour, with the twelve transverse bands, of a fine black, and all of equal length and breadth; the caudal is rather rounded.

In some specimens, a part of the transverse bands disappear. I have one in which five alone are visible. I believe this to be *Chœtodon tetracanthus* of Lacepede. In that case, the sort would have to bear the last specific name. In my paper on the fishes of the Norman River, I mention that specimens from that part seem different from the ordinary *multifasciatus*, and I proposed to call them *alternans* (*Altermans* by misprint).

Scorpis æquipinnis.

Scorpis æquipinnis, Richard; Ereb. and Terror, Fishes, p. 121.

Height, twice and-a-half in the total length of the fish; head, four times in the same; body very compressed, covered with rather small scales; dorsal with ten low spines and twenty-seven rays; anal with three spines, and also twenty-seven rays; the spines increase in length backwards; the rays of the dorsal and anal decrease in height as they extend backwards, and none of them are elevated.

The colour is of a dark brown, rather lighter towards the belly; the upper and lower edges of the caudal are black.

Length over one foot.

Cheilodactylus fuscus.

Six simple rays in the pectorals; the upper one not much longer than the branched ones; the following very long, its free part being very nearly one-half of its length, the others become gradually shorter; dorsal scarcely notched; the spiny part formed of seventeen spines, of which the first is rather short and the fourth the longest; this fin is inserted nearly on the perpendicular from the posterior edge of the orbit; the back is gibbous; there is an eminence on the anterior edge of the orbit; the caudal is strongly emarginate; the anal has three spines and nine rays.

Uniform brown; one foot long.

Cheilodactylus annularis.

Six simple pectoral rays; the uppermost of which extends to the base of the third anal spine; body compressed, high; the anterior profile of the head presents an angle in front of the centre of the eye; back gibbous; dorsal fin nearly equal in all its length, and not sensibly notched; the spinous part formed of seventeen spines, of which the fourth is the longest; the soft portion rather higher than the last spines, of thirty-two rays; caudal strongly forked; anal with three spines—the first short and the third rather longer than the second; the soft part is formed of nine rays.

Entirely of a lilac brown, with a white streak behind the eye, and two white rings round the tail; the fins are dark with the exception of the pectorals, which are of a light colour; the long ray being white.

This unique specimen is about nine inches long, and was taken in February.

Zeodrius.

The six lower pectoral rays are simple; dorsal with thirteen long spines, and one or more short ones in front; several lines of small acute teeth on both jaws, others pavement like, covering the palate; the opercles entire; scales rather large; general form, high in front, tapering towards the extremity caudal strongly forked; lateral line, entire; like *Eques* of the *Sciœnidœ*. This new genus of *Cirrhitidœ* comes near *Chironemus*.

Zeodrius vestitus.

Mouth small and rather advanced; upper profile convex over the eye, and very high and gibbous behind it; the highest part of the fish being over the angle of the opercule; in this part, the height of the body is only contained twice and-a-half in the length, without the caudal fin; the head is three times and-a-half in the same length; the diameter of the eye is three times and-a-half in the length of the head; sides of the head scaly; the dorsal fin is formed of one short spine, one very long one, the five following gradually decreasing, the rest equal; the soft part formed of thirty-four rays; the caudal long, very strongly

forked; the anal very short, with three spines, of which the middle one is the longest, and seven rays, the two first of which are longer than the others; ventrals inserted below the ninth spine of the dorsal; pectorals large, placed at the two inferior thirds of the height; the fifth ray longer than the others, the fourth nearly equal; all the simple rays much longer than the membranes that unite them.

Of a rather dirty silvery white; a broad dark brown stripe beginning below the fourth dorsal spine, and running along the back, and covering the lower lobe of the caudal fin; a similar transverse oblique band runs from the anterior part of the dorsal to the belly; another is in front of this and runs behind the pectoral; a still more oblique band crosses the eye and extends on the cheeks; and a last runs round the mouth; the fins are of a brilliant yellow; the anterior part of the ventrals and the membranes, between the third to the eighth dorsal spines, brown.

The specimen is eight inches long, and was caught at the end of June.

The *Cheilodactylus vestitus* (Garrett, Proceed. Calif. Acad. 1863) so handsomely figured by Dr. Gunther (Mus. Godeffroy, pl. 41) must also be placed in this genus. It is very similar in form and in the disposition of colours to the Australian sort, but five rays of its pectorals are much shorter, and it has four small spines in front of the long dorsal one. It comes from the Sandwich Islands.

SCORPÆNA CARDINALIS.

Scorpæna cardinalis, Rich.; Ann. A. Mag. Nat. H., 1842, p. 212.

Principally distinguished from *cruenta* by the entire or nearly entire absence of the black blotch of the first dorsal.

Also called Rock Cod at Sydney.

Generally of a beautiful scarlet colour; sometimes brown on the back.

SCORPŒNA CRUENTA.

Scorpæna cruenta, Solander; Richards Ann. and Mag. Nat. Hist., 1842, p. 217.

militaris; Voy. Ereb. and Terror, Fishes, p. 21, pl. 14, fig. 1—2.

Of a beautiful scarlet colour—sometimes marbled with grey; belly whitish; sides having rounded dark blotches; the fins are of a reddish pink, variegated with white; the first dorsal has a large black blotch covering nearly the upper half of its posterior part; there are a few black spots on the soft dorsal; they are transversely marbled with white and red; the ventrals are pink; the pectorals beautifully marbled with pink, white, and brown.

It is called Red Rock Cod at Sydney; is not scarce, and is very much esteemed for the table.

Sebastes percoides.

Sebastes percoides, Rich.; Ereb. and Terror, Fishes, p. 23, pl. 15.

This beautiful fish is of a fine orange scarlet, with the lower parts of the first of these colours, with three or four very broad brown transverse bands on the body.

According to Dr. Gunther (Ann. and Mag. of Nat. Hist., 1876, p. 392) my *Sebastes Alporti* would be the same as this species. This may be the case, but the proportions appear to be very different.

Platycephalus fuscus.

Platycephalus fuscus; Cuv. Val. vol. IV., p. 34.

Spines of the head feeble; the two at the angle of the præopercle strong, and nearly equal; body nearly black; below white; dorsal hyaline, with the spines and rays spotted with brown; caudal with its upper part spotted and the lower obscure; a large black rounded spot on the end of the caudal, at about one-third of its height; anal white; ventrals and pectorals yellow, finely spotted with green.

This is the common *Flat Head* of the Sydney Market; particularly common in winter.

Platycephalus Bassensis.

Platycephalus Bassensis; Cuv. Val. vol. IV., p. 247.

Tasmanianus, Rich.; Ereb. and Terror, p. 23, pl. 18.

Called at Sydney the *Red Flat Head*. It does not appear very commonly; at Melbourne it is perhaps the most common fish in the market.

Trigla Kumu.

Trigla Kumu; Lesson and Garnot Voyage Coquille Poiss., pl. 19.

Of a lilac grey, without spots; lower parts of a silvery-white; fins pink; pectorals entirely of a blackish green, with a large black blotch spotted with white; each of these spots is surrounded by a circle of a fine bright blue.

Only one specimen seen on the 27th of October, 1877. It is said to be common on the New Zealand Coast.

Sillago maculata.

Sillago maculata; Quoy. and Gaim., Exped. Freycinet Zool., pl. 53, p. 2.

Back of a greenish olive, with very feeble dark transverse spots or bands; a narrow longitudinal white streak on each side; belly silvery; head of a greenish golden colour; the first dorsal with small obscure specks, and the second with regular longitudinal lines of spots similar to the others; a black spot at the base of the pectorals; fins of a greenish yellow; the end of the caudal obscure; ventrals yellow.

Very common in the Sydney market, and known as the *Whiting*. Only found accidentally and very rarely in the Melbourne Sea.

Sillago Bassensis.

Sillago Bassensis; Gunther's Catal., vol. III., p. 412.
Terræ-Reginæ, Cast.; Proceed. Linn. Soc. N.S.W., vol. II. p. 232.

Called at Sydney *Trumpeter Whiting*. Of a beautiful light silvery blue on the back; silvery white on the belly, with a rather broad white stripe on each side of the body; head white, with a silvery tinge; opercles very finely dotted with black; the two dorsals of a light yellow, with very small black spots; the caudal olive yellow, with its extremity obscure; pectorals transparent; ventrals of an orange yellow; a black spot at the base of the pectorals. When taken, is said to produce a singular noise.

Very common also at Brisbane, where it is the common whiting.

Seems, according to Cuvier, to have also been found at Western Port by D'Urville's Expedition.

The species of *Sillago* are very nearly allied one to the other. I think the Australian can be characterised in the following way:—

Body covered with obscure dots ... ... *punctata.*

Body not punctated:—

a. Dark spots on the back ... ... *maculata.*

b. No spots; a longitudinal band on the sides... ... ... } *Bassensis*, Cuv. Val.; *ciliata*, Gunth.; *Terræ-Reginæ*, Cast.

c. No spots; no longitudinal bands on the sides... *ciliata*, Cuv. Cast.

punctata is the common sort of Melbourne; *ciliata*, on the Eastern and Western Coasts of Australia and in the New Caledonia Sea; *Bassensis*, on the Eastern Shores of Australia, as also *maculata.*

Sciœna aquila?

Sciœna aquila? Lacep, vol. V., p. 685.

antarctica, Cast.; Proceed. Zool. Soc. Vict., Vol. I., p. 100.

I am not certain that this is the same as *aquila*, but it is said to be so; at Melbourne it is called the "King-fish," and it is so scarce that during many years I only saw two specimens, both of enormous size, weighing about eighty pounds; at Brisbane it is called "Dew-fish, and at Sydney "Jew-fish." It is very common in both these places, but the specimens are generally small, and I never saw a full adult. If this is really *aquila* it is to be found in the Mediterranean, and is also very abundant at the Cape of Good Hope.

Sphyræna novæ Hollandiæ.

Sphyræna novæ Hollandiæ, Gunth. Cat., Vol. II., p. 339.

This Pike appears rather frequently in the Sydney market; but all that I have seen were small, compared with those of Melbourne.

Elacate nigra.

Scomber nigra, Bloch., pl. 337.

Centronotus Gardenii Lacep., Vol. III., p. 357.

Elacate Pondiceriana Cuv. Val., Vol. VIII., p. 329.

„ *nigra, Gunth. Cat., Vol. II., p.* 375.

Eight spines before the dorsal; this is long, high in front, getting lower towards the tail, and occupies more than the posterior half of the body; anal having the same form, and beginning rather behind the dorsal; head depressed, caudal forked, forming two equal pointed lobes.

General color, of a dark brownish grey, the lower parts of a dirty white, a badly defined white stripe on each side of the body.

I believe this fish to be very scarce at Sydney, as it was unknown to the fishmongers.

The length of the above described specimen is two feet ten inches; it was caught on the 20th February, 1878.

By the form of its caudal it seems to differ from the Indian species, but this may be owing to its old age.

ECHENEIS NAUCRATES.

Echeneis naucrates, Linn. Syst. Nat., Vol.I, p. 441.

This curious fish is found in nearly all the warm seas of the world; I saw it at Sydney in the month of April.

The color is nearly black, tinged with slatey-grey, the lower parts being of a dirty white.

AUXIS RAMSAYI.

Height of the body four and a half times in total length without the caudal fin; head, three and two-thirds in the same; the pectorals reach nearly to the end of the base of the dorsal, six finlets behind the second dorsal, and the same number behind the anal; first dorsal with nine spines, second with the same number of rays, anal with sixteen rays, the last elongated, and more than half as long as the third, which is the longest.

Scales, similar to those which form the corselet, but much smaller, extend along the lateral line to the vertical from the fifth dorsal finlet, forming a broad stripe; lateral line undulated.

The general colour is dark lead, the back is black with numerous oblique bands of the same colour, extending to below the lateral line as in *Pelamys Sarda*; no trace of wavy black streaks; the fins are whitish, with the anterior part of the first dorsal, and the middle of the caudal obscure, the inner side of the pectorals black.

On the 6th April, 1878, numerous specimens of this species appeared in the Sydney market, the fishmongers call them *horse mackerel;* it is said to be a good fish for the table. I have dedicated this species to the learned Curator of the Sydney Museum.

TRACHURUS DECLIVIS

Caranx declivis. Jenyns, Zool. "Beagle," Fishes, p. 68, *pl.* 14.
Trachurus Trachurus, Gunther Cat., Vol. II., p. 420.

Dr. Gunther considers this fish the same as the European species; my reason for keeping it distinct is that it is always much smaller in Australia, and remarkable for the bright yellow colour of its caudal fin; the body plates number seventy-nine or eighty.

It is a very common species in Port Jackson, particularly near the Heads.

TRACHYNOTUS OVATUS.

Gasterosteus ovatus. Linn. Syst. Nat. Vol. I., p. 490.
Trachynotus ovatus, Gunth. Cat., Vol. II., p. 481.

Height of body contained twice and one-third in total length, without the caudal; the maxillary reaches to the anterior third of the eye; the lateral line is almost straight; the anterior parts of the dorsal and anal very much elongated, the first formed of one spine and twenty-three rays, the second of one spine and twenty-two rays, the short spines in front of the dorsal are six in number without the horizontal one, or seven in all, the caudal is very forked; the ventrals are small.

The back is of a silvery-grey with the sides and belly of a fine white, on the back are six faint transverse bands of a greyish purple, fins of a dark slatey colour, with the pectorals, ventrals, and inner side of the caudal white.

Only seen twice in May and once in August, the specimens were about a foot long.

N.B.—On the two larger specimens there were four or five obscure rounded blotches over the lateral line.

BLEPHARIS CILIARIS.

Zeus ciliaris, Bloch., Vol. VI., p. 29, *pl.* 191.
Blepharis indicus, Cuv. and Val., Vol. IX., p. 154.

Found also in the Red, and all over the Indian Seas.

Of a silvery white; back of a fine light blue; base of dorsal and ventrals black; the long filaments of the dorsal and anal white at the base, and black on the rest of their length.

During life there is no trace of the transverse bands, which appear after death in *most* cases.

PEMPHERIS COMPRESSUS.

Sparus compressus, *White Journ. Voy. N. S. Wales*, *app.*, *p.* 267.
Pempheris compressus, *Gunth. Cat.*, *Vol. II.*, *p.* 508.

The height of the body is contained twice and a half in the total length, without the caudal fin, the upper lobe of the caudal is much longer than the lower; of a rosy brown, with the lateral line of a bright golden yellow, the anterior edge of the dorsal, and the greater part of the anal and ventrals black.

Not very scarce at Sydney, and also found, according to Dr. Gunther, at Swan River.

ELEOTRIS AUSTRALIS.

Eleotris Australis Gunth., *P.Z.S.* 1864, *p.* 183.

Mr. Duboulay has given me several specimens of an *Eleotris*, which belongs without doubt to the species I refer it to.

The colour is of an orange-yellow, with six longitudinal black stripes on the sides; the two most central are generally united by transverse lines, making the yellow part to appear like rounded spots; the second dorsal and caudal, pinkish, spotted with brown; a deep groove on the upper part of the back.

The longest specimen is about four inches.

From Ropes' Creek, also from the immediate vicinity of Sydney.

BLENNIUS UNICORNIS.

Height of body five times in the total length without the caudal, or six times with it; body elongate, head obliquely truncated in front, without tentacles; an arched fleshy horn directed upwards on the forehead; the dorsal beginning over the end of the opercle; the last rays extending slightly over the caudal fin which is rounded.

Of an olive colour with the belly and pectorals yellow, cheeks and upper part of the head black, a series of transverse black spots on the anterior half of the body; on the posterior part they form five irregular longitudinal lines.

This little fish, which is about two inches long, enters the

oysters about Sydney and destroys them. I am indebted for this information to Mr. Joubert, who found several in oysters, the animals of which had been more or less eaten.

Cristiceps Macleayi.

Body rather elongate, its greatest height being contained three times and one third in the total length without the caudal fin; head four times in the same; forehead oblique and straight, the lower jaw rather longer than the upper; snout a little longer than the eye, a fringed tentacle on the nostrils and another over the orbit; the first dorsal two-thirds of the height of the body, it is placed over the posterior third of the eye; second dorsal formed of thirty-four rays or spines; the caudal long and pointed; the anal with twenty-five rays; the pectorals are of moderate length; the second dorsal is placed farther backwards on the tail than the anal, but both are attached to it by a membrane.

The fish is entirely of a reddish-brown, with the fins orange.

The only specimen I have seen is 7 inches long, and in the collection of Mr. Wm. Macleay, who communicated it to me under the name of *Australis*, but that species is described by Cuvier and Valenciennes as having transverse bands, and as inhabiting Tasmania, and I believe it is the one I described under the name of *Howittii;* Proceed. Zool. Soc. Victoria, Vol. II., p. 48.

N.B.—Dr. Gunther mentions a fish from Port Jackson that he considers as belonging to the European *Cristiceps argentatus*, but at the same time finding constant differences between the two, he says that "those who consider this variety as a separate species may call it *Cristiceps antinectis;*" or in other words this means that the Australian *Cristiceps* is *argentatus* but at the same time it is not; so that though it is *argentatus* it will have to be called *antinectis;* showing once more into what confusion zoologists fall when they want to establish local varieties instead of admitting all such *constant varieties* as distinct species, particularly when they are found in different regions. It is evident that the number of Australian species of this genus is very large, and their study is rendered still more difficult by the fact that the old authors considered them all as one; I cannot on description

place *aurantiacus* and *Macleayi* with any yet described, but the specimens ought to be compared with *nasutus* and *roseus* of Gunther.

CRISTICEPS AURANTIACUS.

Body elongate, its height contained four times and a half in the total length without the caudal fin; head not quite four times in the same; forehead concave; snout longer than the eye; the lower jaw longer than the upper; a fringed tentacle on the nostril and one over the orbit; the first dorsal nearly as high as the body, and placed in front of the eye; the first spine being the longest, the third being one-third shorter; the second dorsal much lower, consists of twenty-nine spines, and seven rays; the tail is long and narrow; the caudal is long, pointed, and formed of nine long rays; the anal, like the dorsal does not reach the base of the caudal, it is formed of two short spines, and twenty-four rays; the pectorals are large and formed of ten strong fleshy simple rays; the ventrals, of three similar ones.

The fish is of a beautiful orange colour, with the fins of a fine yellow; the specimen is eight and a half inches long, and was found at Kiama by Mr. Duboulay, it is also found at Sydney.

N.B.—This species comes very near my *Cristiceps splendens*, but differs, by the first dorsal being placed in front of the eye; by the space between the two dorsals being only equal to the length of the first of these fins; and by the second dorsal being placed more forward, its third spine being in a line vertical to the end of the operculum.

I find this fish in the Sydney museum under the name of *Australis, Cuv. & Val.*, but the figure given by those naturalists (pl. 336) can in no possible manner apply to *aurantiacus*.

TEUTHIS JAVUS.

Linn. Syst. Nat. Vol. I., p. 507.

Of a blackish grey; lower parts of a pearly blueish white, the small round spots on the back of a light blue; fins of an olive colour, though slightly marbled with brown.

MUGIL GRANDIS.

General form high, the profile strongly convex; an adipose

eyelid covering one-third of the orbit; anal fin with eight soft rays; forty-two scales on the lateral line; pectorals a little above the middle of the body; the height of the body is contained three times and one-third in the total length without the caudal or four times with it; the head is about five times in the last measurement; the space at the chin between the mandibles and interopercles is broad and oval; the head is very broad; the pectorals extend to the sixth scale of the lateral line; there are some scales on the vertical fins, and a remarkable series in front of the third spine of the first dorsal; caudal emarginate; the first dorsal spine is considerably longer than the others.

All the specimens I have seen of this species were of large size, up to two feet in length; they are found in the open sea, and appear in great numbers at the beginning of the winter; it is in high esteem for the table.

N.B.—This species seems to come near *M. cephalus* of the Mediterranean, and has also the appearance of *dobula*, but the head is much broader, as is also the space on the chin between the mandibles.

I believe this is the "sand mullet" of Melbourne, that I had taken for *Mugil waigiensis* of Quoy and Gaimard, but which cannot be this sort on account of its adipose eyelid.

Mugil dobula.

Mugil dobula, Gunth. Cat. Vol. III., p. 421.

Adipose eyelid well developed; forty scales on the lateral line; anal with eight soft rays; head broad; the angle made by the anterior margins of the mandibulary bones very acute; caudal deeply forked.

Colour silvery white; the back of a dark brown; head slightly gilt; fins grey and transparent; caudal bordered with black; anal white.

Generally from ten to fifteen inches long; frequenting bays and marshes; it also ascends rivers to a great distance, and is to be found in almost all those of New South Wales and Queensland.

Mugil Peronii.

Mugil Peronii, Cuv. & Val., XI., p. 138.

I have already mentioned this species in my paper on the fishes of Victoria (Proceed. Zool. Soc. of Vict. vol. II., p. 151); it seems to be very rare in the southern parts of Australia, but is common in the neighbourhood of Sydney.

It may be characterized thus:—No developed adipose eyelid; anal fin with ten soft rays; no pointed axillary scale; tail compressed and very high; caudal very strongly emarginated; body compressed; its greatest height being behind the half of the body; head pointed.

Colour very silvery; back dark, with a beautiful blue tinge; fins rather dark; a bright golden spot on the opercle in front of the insertion of the pectorals, and another behind the eye.

Usual size about a foot long; it frequents the bays, estuaries, and lagoons of the coast.

Fistularia serrata.

Fistularia Tabaccaria, White, N. S. Wales, p. 296, pl. 2.

serrata, Cuv. Regn. anim., Vol. II., p. 267.

Found all over the Indian sea; pretty plentiful at Sydney, particularly in May and June.

It is of an olive green, lower part white; the eye is green.

Heliastes hipsilepis.

Heliastes hipsilepis, Gunth. Ann. & Mag. Nat. Hist. Vol. 20, p. 66.

Height of body contained twice and one-third in total length, without the caudal fin; head three times and one-third in the same; preopercle striated, and almost (?) finely serrated on its lower edge; eye very large; the diameter of the eye of the length of the snout; scales of the body large, twice as high as long, numbering twenty-eight or twenty-nine; dorsal formed of thirteen spines, and fourteen rays; caudal deeply forked; anal with two spines the first short, the other nearly four times as long; pectorals long.

The colour of a dark olive green; lighter and inclined to yellow on the sides of the head and on the belly; base of the pectorals black.

Size, six and a half inches long.

LABRICHTHYS GYMNOGENIS.

Labrichthys gymnogenis, Gunth. Cat., vol. IV., p. 117.

Snout rather pointed; head naked, covered with pores; a single series of scales extending from behind the eye to the cheek, where the scales become small and disappear; a posterior canine tooth, and two canines in front in both jaws; lateral line marked by very complicated arbuscules.

Entirely of a dark green, becoming rather yellow on the lower parts of the head; dorsal and anal crimson bordered with black on their upper edges; a series of very faint, round, light blue spots on each membrane near the base; caudal green, with its base orange; ventrals green with a black longitudinal stripe near the spine; pectorals yellow; the tail of a light yellowish green.

N.B.—The specimens are about eleven inches long; when fresh there were numerous round light pink spots on the body, but they have disappeared on the specimens preserved in spirits.

LABRICHTHYS PARILA.

Labrichthys parila, Gunth. Cat. Vol. IV, p. 117.

Tautoga parila, Richards, Proc. Zool. Soc., 1850, *p.* 70.

Of a fine light brown, with a longitudinal series of oblong spots; these are white on the anterior part of the fish, and pink on the posterior; dorsal whitish in front, orange on its posterior part, with a very faint longitudinal stripe in the middle; caudal truncate, orange; anal of a fine orange, with the extremity of the rays white, bordered with a black line; pectorals yellow; upper part of the head and cheeks grey.

There is no posterior canine; the head is covered with fine granulations and pores; the operculum has large scales, but the præoperculum and cheeks are naked, with the exception of a line of scales extending behind the eye.

The specimen is eight inches long.

COSSYPHUS UNIMACULATUS.

Cossyphus unimaculatus, Gunth. Cat., Vol. IV, p. 109.

Head large, very pointed in front; præopercle finely serrated; dorsal with twelve spines and eleven rays; anal with three spines and twelve rays; a tooth at the commissure of the jaws.

Of a beautiful carmine, with the lower parts of a whitish yellow; an oval black blotch bordered with white on the dorsal, extending over the sixth, seventh, and sometimes the eighth spine; in some specimens this blotch is divided into two or three spots, but the central one is always much larger than the others. In some specimens there is on a part of the scales a round whitish spot.

Rather plentiful at Sydney, and often called "Pig Fish" on account of its elongated snout.

CORIS LINEOLATA.

Coris lineolata, Gunth. Cat., vol. IV, p. 206.
Julis lineolata, Cuv. and Val., vol. XIII, p. 436.
„ *cyanogramma, Richards, Ann. and Mag. Nat. Hist., vol. VII,* 1851, *p.* 289.

Of a beautiful carmine pink on the upper parts, the sides and belly of a silvery white; a broad longitudinal black stripe, irregular on its edges, extending along the sides; throat obscure; arched oblique lines of a fine light blue on the sides of the head, and one in the middle; an oval black spot on the dorsal extending over the sixth, seventh, and sometimes the eighth spine; this spot, which is sometimes divided into two or three, is bordered with white. The base of the dorsal and pectorals orange, the remaining portion pink; two or three longitudinal white lines extend entirely along the dorsal fin; a small variety has no black band on the sides.

This beautiful species was discovered by Peron, since which Quoy and Gaimard found it at Western Port. The British Museum has received it from Swan River.

I have only seen it at Sydney, where it is rather common during the warm season.

ODAX SEMIFASCIATUS.

Odax semifasciatus, Cuv. and Val., vol. XIV, p. 297, *pl.* 407.

Very much like *Richardsoni,* but with the præopercle entire.

It is called "rock whiting" at Sydney, and is fourteen inches long; obtained in May.

The colour varies much, being sometimes entirely of a fine

sky blue, with a golden spot on each scale; sometimes of a brilliant green, with the belly white, but always with transverse black spots on the superior half of the back.

ODAX OBSCURUS.

Odax obscurus, Cast. Proceed. Zool. Soc. Vict., vol. I, p. 154.

One small specimen, similar to those from Victoria, in the beginning of June.

GERRES OVATUS.

Gerres ovatus, Gunth. Cat., Vol. IV., p. 257.

Body high and oval; its height contained once and one-fifth in the total length, without the caudal fin, the second spine of the dorsal being the longest; the third of the anal longer, but more slender than the second, head rather pointed, pectorals long.

Entirely of a silvery grey, having a yellow tinge on the lower parts; fins yellow, the dorsal finely bordered with black.

Specimen eight inches long.

LOTELLA CALLARIAS.

Lotella callarias, Gunth. Mag. Nat. Hist., 1863, *p.* 116.

Height of body contained four times and one-third in the total length, without the caudal fin, head not quite four times in the same; upper profile convex; the highest part of the fish a little behind the first dorsal, and from thence tapering posteriorly; the teeth on the upper jaw form a band, with an external line of larger ones set considerably apart; on the lower jaw there is only the external series.

PSEUDORHOMBUS RUSSELLII.

Pseudorhombus Russellii, Gunth. Cat., Vol. IV., p. 424.
Platessa Russellii, Gray, Ill. Ind. Zool.

Called the "Flounder" at Sydney, where it often appears in the market; the colour is of a dark brown, with the fins lighter, inclining to yellow, and covered with small black spots.

Mouth very extensible; caudal pointed; the rays of the dorsal are scaley on the two posterior thirds of the fin.

Dentition more developed on the coloured than on the blind side.

D. 69. A. 53. V. 5. P. 8.

N.B.—This fish is evidently different from the Melbourne "Flounder."

SYNAPTURA QUAGGA.

Synaptura quagga, Gunth. Cat., Vol. IV., p. 485.

Æsopia quagga, Kaup. in Wiegm. Arch., 1858, *p.* 98.

Body oblong; the left pectoral fin is only rudimentary; the jaws are of equal length; the lower eye is rather behind the upper one.

Of a fine dark brown, with ten light transverse bands, which are slightly bordered with black.

This species is rather common in the China and Indian Seas, and seems to be found nearly all round Australia, but to be very scarce in these parts.

I have seen it at Sydney and Brisbane; and Mr. Bostock sent me one from Swan River.

CNIDOGLANIS MEGASTOMA.

Cnidoglanis megastoma, Gunth. Cat., Vol V., p. 27.

Plotosus megastoma, Richards, Voy. Ereb. and Terr. Fishes, p. 31., *pl.* 21.

Most of the Australian *Siluridæ* belong to the group *Plotosinæ*, characterized by the presence of a short anterior dorsal, and the second dorsal very long and continuous with the caudal and anal, the ventrals are many-rayed.

The genus *Cnidoglanis* is distinguished by its small eyes, and the gill membranes united below the throat, and attached to the isthmus along the entire median line; the genus was first established by Dr. Gunther.

This species is known at Sydney as the "Cat-fish"; the head is very broad; the barbels extend a very little behind the eye.

The colour is of a dark olive brown on the back, with the lower parts of a dirty white; mouth, anterior part of the head, and spots on the body, of a beautiful orange yellow. The usual size is about thirty inches. This fish is very strong, very difficult to

kill, and fights to the last; its motions are very rapid, and it inflicts dangerous wounds with its strong dorsal and pectoral spines.

When wounded it loses a large quantity of blood of a dark red colour.

Not common in Port Jackson; taken with the hook; it is not usually used for food.

Cnidoglanis lepturus. ?

Cnidoglanis lepturus ? Gunth. Cat. Vol. V., p. 28.

"Dog-fish" at Sydney.

Height of the body, six times and a half in the total length without the caudal fin; head rather depressed, its breadth being only one-fifth less than its length, it is five times in the total length without the caudal; the nasal and maxillary barbels do not extend sensibly further than the eyes; eye small; the first dorsal high, the second only one-third of its height; vomerine teeth, molar-like, in a double triangular band, those of the maxillary short, conical, in two patches of two, those of the lower jaw molar-like, with an external line of conical ones; lower lip pendant, broad, covered with tubercles, and fringed; a few granulations on the sides of the head, before and below the eye. Of a dark slatey colour, with the lower parts of a dirty-white; about fifteen inches long.

Saurida Australis.

Height of body contained eight and a half times in the total length, without the caudal; head four times and two-thirds in the same. Upper jaw longer than the lower; eye contained six times in the length of the head, and rather longer than the snout; the pectoral extends to the end of the ninth scale of the lateral line, this forms a slight keel on the posterior half of the fish; the dorsal has eleven rays, it is a little higher than long; the anal has eleven rays; the number of scales on the lateral line is fifty-eight; the caudal is emarginate.

The general colour is of an olive green; the sides of the head rather gilt; a longitudinal narrow and faint white streak extends on the fresh specimens below the lateral line, and another lower

down; lips pink; lower parts white; dorsal adipose; pectorals and caudal olive, anals and ventrals white.

Total length of the specimen fourteen inches, taken in the month of May.

N.B.—The number of the fin rays seems to unite this species with *undosquamis*, of Richardson, but the pectorals are much shorter, and are far from extending to near the vertical of the origin of the dorsal.

Hemirhamphus regularis.

Hemirhamphus regularis, Gunth. Cat., Vol. VI., p. 261.

The common "gar-fish" of the Sydney market; general colour of the back, dark blue; a broad silvery band on each side; caudal black; the upper jaw is rather broad.

N.B.—The fishmongers distinguish two sorts; one is larger, and has more small black lines on the back; they say that this is the only one that can be preserved.

Hemirhamphus melanochir.

Hemirhamphus melanochir, Cuv. & Val., Vol. XIX, p. 41,
intermedius, Cantor & Gunther.

Of a light green; a very narrow silvery band on each side; caudal black; upper jaw much more narrow than in the preceding species.

Equally common at Melbourne, Swan River, Brisbane, and Sydney; found also in the Indian Sea.

Hemirhamphus argenteus.

Hemirhamphus argenteus, Bennett, Whaling Voy., Vol. II., p. 269, *figured.*

Hemirhamphus breviceps, Cast., Proceed. Linn. Soc. N.S.W., Vol. II, p. 240.

Remarkable for its comparatively short lower jaw.

Common at Brisbane, but only seen once at Sydney.

Belone ferox.

Belone ferox, Gunth. Cat., vol. VI., p. 242.

The back of the tail is broad and depressed; the posterior

rays of the dorsal are short and about equal to the others.

Very plentiful in the market.

CLUPEA MOLUCCENSIS.

Clupea moluccensis ? Bleeker, Nat. Tyd. Ned. Ind., vol. IV·, p. 609.

The body is very compressed ; height contained twice and one-third in the total length, without the caudal ; head three times and a half in the same ; the lower jaw is longer than the upper one, and when the mouth is shut the opening is upwards ; snout very short ; maxillary very large and extending further than the anterior margin of the eye ; this is large and only contained twice and a half in the length of the head.

Dorsal with seventeen rays ; caudal very forked ; anal low, with eighteen rays, the ventrals are inserted a little behind the pectoral ; mouth very extensible ; tongue smooth ; the serrature of the belly extends higher than the pectorals ; of a beautiful azurine blue on the back ; the rest very silvery ; head gilt ; fins of a light yellow ; the dorsal with its extremity, and a faint transverse band, black ; seen in the sun, there seems to be a longitudinal white stripe on the body, between the blue and silvery.

Sometimes seen in the Sydney market, and one specimen from the Brisbane River, sent to be by the Queensland Museum.

MURŒNESOX BAGIO.

Murœnesox bagio, Kaup. Cat. Apod., p. 116, *pl. XIV, fig.* 73.

Ophisurus rostratus, Quoy and Gaim., Voy. Uran., Zool., p. 242, *pl.* 51.

Conger oxyrhynchus, Eydoux and Soul., Voy. " Bonito." p. 203, *pl.* 9, *fig.* 2.

Congrus tricuspidatus Richard, Voy. " Sulphur," p. 105, *pl.* 51.

Body very elongate, scaleless ; snout very much produced ; vomer with very strong, long, and compressed teeth, with more or less conspicuous lobes at the base. Of a light lilac colour with the belly white ; the dorsal yellow, bordered with black. Sometimes called " sea eel," by the fishermen ; found all over the Indian and China Seas.

Myrophis ? australis.

Posterior nostril large, situated below an arched ridge just above and on the side of the lip, with a fleshy fringe below; the other very small in front.

Head with a strong longitudinal central ridge, and on each side the arched one already mentioned; cleft of the mouth opening to the line over the half of the orbit; teeth very numerous, small, truncated in one series, except in front, where there is another equal short series; the orbit contained once and a half in the length of the snout; pectorals well developed, as is also the dorsal and anal, which are united; tail much longer than the body, and very pointed; dorsal beginning much nearer to the pectorals than to the vent.

The general colour is of a greyish brown, sometimes almost red, the body sometimes marbled with a rather darker colour; fins slaty. Inhabits the sea.

The dimensions are :—

Total length	34 inches
Body	14 ,,
Tail	20 ,,
From snout to the pectorals	4 ,,
Pectorals to base of dorsal	$2\frac{1}{2}$,,
From pectoral to vent...	$9\frac{1}{2}$,,

Muræna siderea.

Muræna siderea, Rich. Ereb. and Terror, p. 85, *pl.* 48.

Head becomes very high behind the eye. Of a fine lilac colour, with rather numerous round brown spots.

Specimen eight inches long. Sydney and Moreton Bay.

Conger ? labiata.

Scaleless; cleft of the mouth extending a little further than the centre of the eye, which is rather shorter than the snout; teeth numerous, fine, pointed, forming an outer line with an inner one on the side of the upper jaw, two rows on the lower; pectorals rather large; dorsal beginning slightly behind the pectorals; the two jaws about equal, the lips hanging down on each side. The body contained once and two-thirds in the length

of the tail, which is pointed; the anal and dorsal united; the posterior nostril is in front of the upper edge of the eye, the anterior smaller, and placed in front over the lip. On each side of the snout a small tentacle; the snout is projecting. Of a dark olive green on the back, with the belly and the fins of a bright yellow, with the exception of the ends of the dorsal and anal, which are black.

About twenty inches long.

Syngnathus tigris.

The length of the snout is shorter than the distance from the front margin of the orbit to the end of the opercle; no ridge on the side of the head; tail very long, more than once and a half the length of the head and body; base of the dorsal slightly raised above the back; no spines on the shields; upper edge of the caudal and lateral line continuous; vent placed below the middle of the dorsal fin; caudal fin well developed, two-thirds as long as the snout.

Seventeen body scutes; thirty-six caudal; dorsal high, with twenty-five rays, extending over five rings.

General colour a dark olive-green, variegated with brown on the sides; white below; on the sides of the head a few very narrow, oblique stripes of a dark reddish brown; twelve broad dark reddish bands on the body; each body scute with a white half oval spot on its lower edge.

Length twelve inches.

Monacanthus ayraudi.

Balistes ayraudi, Quoy & Gaim. Uran. Zool., p. 216, *pl.* 47, *fig.* 2.

Body very elongate; snout very long; dorsal spine with only two series of barbs, which are pointed backwards and downwards; ventral spine fixed, very small; skin velvety, rather rough.

Colour, grey, with generally three longitudinal brown bands; fins yellow; in very old specimens, fifteen to eighteen inches long, the colour is uniform without bands.

The small specimens of this species are very common at Port Jackson, particularly near the heads.

Monacanthus granulatus.

Monacanthus granulatus, White, Voy. to N. S. W., p. 295, *pl.* 39.
Gunther Cat. vol. VIII., p. 243.
granulatus? Richard. Ereb. & Terror, fishes, p. 63, *pl.* 40.

Ventral spine present, enclosed in the pelvic bone; dorsal spine with only two series of barbs pointed backwards and downwards; body covered with minute papillæ like mushrooms; the ventral fin very fully developed.

Of a brownish grey, marbled with dark brown, with the papillæ white; fins olive yellow sprinkled with brown; generally two large dark spots at the base of the anal on the belly.

N.B.—Certainly different from my *margaritifer*, but having the same form; Richardson's species is I believe the latter, as the plate represents the dorsal spines barbed on both sides.

Monacanthus megalurus.

Monacanthus megalurus, Richard. Ic. Pisc. p. 109, *pl.* 8.
chinensis, Richard. Ereb. & Terror, fishes, p. 64, *pl.* 40.

Body elevated; snout pointed; dorsal with only two series of barbs, which are pointed backwards and downwards; anal fin with thirty or thirty-one rays; ventral spine moveable, without spinelets; some old males with the upper caudal ray produced.

Brown; ventral expansion of a livid grey with its extremity black; dorsal of a dusky brown with its external half yellow; extremity of the caudal and anal black.

Obtained in April.

Monacanthus Peronii.

Monacanthus Peronii, Hollard, Ann. Sc. Nat. 1854; *vol. II., p.* 356, *pl.* 13, *fig.* 4.

Anal fin with thirty-three spines; the dorsal with four edges, equidistant, and armed with barbs; body covered with papillæ having rather the form of small mushrooms; four curved spines on the tail.

Brown with the lower parts grey; along the back and the base of the anal are seen irregular narrow lines of a most beautiful

azure blue; the space where the caudal spine and the base of the caudal fin are, of a brownish red; the other fins yellow, sometimes rather orange.

Several specimens procured in April and May.

MONACANTHUS HIPPOCREPIS.

Monacanthus hippocrepis, Quoy and Gaim., Voy. Uranie, Zool., p. 212.

Aleuterius variabilis, Richard, Ereb., and Terror, fishes, p. 67, *pl.* 53, *fig.* 1.

Anal fin with less than forty rays; (35) dorsal spine with four series of barbs, the front series very close together; skin velvety; generally four and sometimes six strong spines directed forward.

Brown, with some reticulated lines of a darker colour, on the back; on the head oblique black stripes, which become of a fine blue when near the eyes; on the upper part of the head the colour becomes yellow, with the stripes purple; on each side of the body there is a large yellow patch marbled with brown; on the tail there is a flesh-coloured patch, on which are the spines; caudal fin grey, with a transverse crescent of a fine brown; dorsal, a brilliant yellow with its base brown; the other fins of a fine yellow.

Rather plentiful in the warm months; usual size about thirteen inches long.

In May I obtained a female specimen, with rather dull colouring and without caudal spines; the upper profile of the snout is straight.

MONACANTHUS RUDIS.

Monacanthus rudis, Richard, Ereb. and Terror, fishes, p. 65, *pl.* 40, *fig.* 7.

Div. Anal fin with less than forty rays; dorsal spine with four series of barbs; the front series being much closer together than the back.

Form oblong; anterior profile of the head rather concave; body covered with short spinelets, having each three or four points, which become smaller, and more crowded on the head and tail; ventral spine very small, not moveable; the dorsal

spine as long as the space from the snout to the anterior edge of the orbit; the barbs of its posterior edge moderate, directed downwards; those of the anterior very small, only visible on the superior half of the spine, and the two series only separated by a longitudinal sulcate; this dorsal spine is inserted over the anterior third of the orbit; the second dorsal has thirty-eight rays; the caudal is rounded; anal with thirty-five rays.

Of a greyish yellow becoming brown on the back; belly of a dirty white; fins of a bright yellow; the posterior half of the caudal of a dark colour.

The specimen is over ten inches long, it bears no trace of spines on the tail; obtained in October.

Dr. Gunther places *rudis* with those species having only two series of barbs on the dorsal spine; but I believe there is no doubt that this is Richardson's species; these anterior barbs are small, and are perhaps missing in some specimens; the specimen I described under this name, Proceed. Zool. Soc. of Vict., Vol. II, p. 54, does not belong to this species, and is probably *Freycineti* of Hollard.

MONACANTHUS PRASINUS.

Monacanthus prasinus, *Cast.*, *Proceed. Zool. Soc. Vict.*, *Vol. I.*, *p.* 205.

Small specimen, similar to those fr m Victoria, but with the lower part of the body of a silvery white; procured in June.

ARACANA LENTICULARIS.

Aracana lenticularis, *Gunth. Cat. Vol. VIII.*, *p.* 268.
Ostracion lenticularis, Richard., P.Z.S., 1841, p. 21.

Of a lilac pink, with yellow reflections; on the sides and back some spots of an ochreous-yellow, having the centre darker; lower parts of the body and mouth of a rose colour, becoming darker towards their extremities.

TETRODON LUNARIS.

Tetrodon lunaris, *Bloch. Schneid.*, *p.* 505.
var. spadiceus, *Richard. Sulphur. Fish*, *p.* 123, *pl.* 58.

Enters Dr. Gunther's division; " back lower, not compressed;

nasal openings two on each side, opposite each other, and placed on a single, more or less prominent papilla; a distinct fold along the lower part of the body and tail;" forming the genus *Gastrophysus*, of Muller; upper parts covered with small spines beginning rather in front of the eyes, and extending to the base of the dorsal; others cover the belly, but no transverse lines of these spines join one another on these parts; the head is quadrangular, and is more than the distance between its posterior extremity and the base of the dorsal; caudal forked; tail slightly compressed and naked; anterior part of the head elevated; cheeks entirely smooth, with a line forming an angle in front, and another below the eye; the upper parts are brown; the sides of the head silvery; the fins yellow; no defined silvery bands on the sides.

The specimen is eight and a half inches long, and is from Moreton Bay; it belongs to the Brisbane Museum.

The length of the head is more considerable than is said in Dr. Gunther's description; this fish certainly belongs to Richardson's *spadiceus* from the Chinese and Indian Seas, and may be different to the typical *lunaris*.

Tetrodon amabilis

Nasal organ very conspicuous, simple, without any fringe or tentacles; no fold along the lower part of the tail; body covered with short villiform spines; dilated belly, covered with rather spaced tubercles; eight dorsal rays, the body is entirely of a dark reddish brown; the belly of a fine orange colour; this is covered with numerous broad, black, concentric stripes; the fins are of a bright yellow; the caudal is orange with numerous black spots, forming several irregular transverse bands; the anterior profile of the head is concave; it becomes very convex over the eyes, and runs nearly straight along the back.

The only specimen (taken on the 20th July, 1877) I have seen of this pretty fish is four and a half inches long.

Diodon novemmaculatus?

Diodon novemmaculatus ? Cuv. memoires du museum, vol. VII. maculatus ? Gunth. Cat. vol. VIII., p. 307.

Atopomycterus Bocagei, Steind. Sitzb. Ak. 1866, *p.* 477, *pl.* 6, *fig.* 3.

Grey colour; body covered with small round black spots, forming several transverse black transversal bands, one below the eye, one in front of the pectorals, and the third behind these; fins of a fine bright yellow; the front of the head is covered with five longitudinal dark lines.

Note.—The nasal tentacles are bifid. Like Steindachner, I cannot see any nasal openings. It is certain that this is the species mentioned by that author.

CONTRIBUTIONS TO THE ZOOLOGY OF NEW GUINEA.

PART III.

Description of a *new marsupial* allied to the genus Perameles, *Geoff.*

By E. P. Ramsay, F.L.S., C.M.Z.S., Cor. Memb. Royal Soc., Tasmania; &c.

Perameles broadbentii, *sp. nov.*

Pl. 27.

In. $\frac{5-5}{3-3}$; can. $\frac{1-1}{1-1}$; premol. $\frac{3-3}{3-3}$; mol. $\frac{4-4}{4-4}$.

Mr. Kendall Broadbent was fortunate enough to obtain a single specimen of this fine species, at a considerable distance inland from Port Moresby, in some of the dense mountain scrubs on the banks of the Goldie River. It is, without doubt, the largest species of the genus yet made known, and, although departing somewhat from *Perameles* proper (chiefly in the form of the skull and tail), I prefer, for the present, to keep it in this genus, than to create a new one for its reception. The tail, in which only a few of the vertebræ at the tip have been left, appears to have been, to some extent, prehensile, and, in its peculiar scaly under surface, differs from that of any other species of the genus (*Perameles*).

The hair is comparatively smooth, not so harsh to the touch as in *P. nasuta;* some of the longer black hairs are slightly flattened, stiff, but not spiny, the longest about an inch in length; the under fur is soft and wavy.

The general color is of a blackish brown; the throat, sides, and all the under surface and fore legs, fawn color, a little brighter on